

Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 130 905 A3**

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
19.12.2001 Bulletin 2001/51

(51) Int Cl.7: **H04N 5/225**

(43) Date of publication A2:
05.09.2001 Bulletin 2001/36

(21) Application number: **01103738.9**

(22) Date of filing: **15.02.2001**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**
Designated Extension States:
AL LT LV MK RO SI

(72) Inventor: **Miyake, Hiroyuki**
Chiyoda-ku, Tokyo 100-8310 (JP)

(74) Representative: **Sajda, Wolf E., Dipl.-Phys. et al**
MEISSNER, BOLTE & PARTNER
Widenmayerstrasse 48
80538 München (DE)

(30) Priority: **23.02.2000 JP 2000046523**

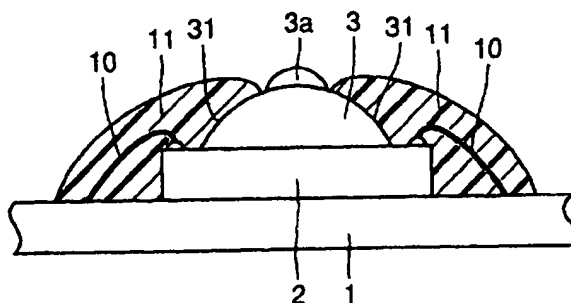
(71) Applicant: **mitsubishi denki kabushiki
kaisha**
Tokyo 100-8310 (JP)

(54) **Image pickup device**

(57) An integration of a pickup element and an optical element including an imaging lens can be integrated with a casing to miniaturize the obtained pickup device. A coupling portion is integrated with the pickup element and is fixed to a fixing portion included in the casing. In accordance with the present invention a pickup device includes a substrate (1), a pickup element (2)

provided on the substrate (1), an optical element (3) provided on the pickup element (2) and having at least one imaging lens (3a), a wire (10) electrically connecting the substrate (1) and the pickup element (2) together, and a resin seal (11) sealing the wire (10) while exposing the imaging lens (3a), the pickup element (2) and the optical element (3) integrated together and a casing (7) being integrated by the resin seal (11) and thus miniaturized.

FIG.8



EP 1 130 905 A3

European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 10 3738

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 5 783 815 A (IKEDA SHIGEO) 21 July 1998 (1998-07-21) * column 6, line 8 - column 8, line 22 * * figures 6A,,6B,,6C,7A,7B,7C,,8,9 *	1-3	H04N5/225
D,A	EP 0 773 673 A (SONY CORP) 14 May 1997 (1997-05-14) * figure 6 *	5	
A	FR 2 690 533 A (EUROP AGENCE SPATIALE) 29 October 1993 (1993-10-29)		
A	WO 92 15036 A (VLSI VISION LTD) 3 September 1992 (1992-09-03)		
X	PATENT ABSTRACTS OF JAPAN vol. 1995, no. 11, 26 December 1995 (1995-12-26) -& JP 07 226524 A (OLYMPUS OPTICAL CO LTD), 22 August 1995 (1995-08-22) * abstract * * see figure 4a of the Japanese document *	6	
A	PATENT ABSTRACTS OF JAPAN vol. 005, no. 176 (E-081), 12 November 1981 (1981-11-12) & JP 56 103481 A (FUJI PHOTO FILM CO LTD), 18 August 1981 (1981-08-18) * abstract *	6	TECHNICAL FIELDS SEARCHED (Int.Cl.7) H04N H01L
A	PATENT ABSTRACTS OF JAPAN vol. 016, no. 185 (E-1197), 6 May 1992 (1992-05-06) & JP 04 023469 A (TOSHIBA CORP), 27 January 1992 (1992-01-27) * abstract *	6	
-/--			
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 October 2001	Examiner Wentzel, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			



European Patent
Office

Application Number
EP 01 10 3738

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 10 3738

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	WO 99 13515 A (AMKOR TECHNOLOGY INC) 18 March 1999 (1999-03-18) * page 9, line 16 - page 16, line 27 * ---	8	
A	US 4 843 036 A (SCHMIDT JOHN D ET AL) 27 June 1989 (1989-06-27) * column 2, line 50 - column 4, line 10 * -----	8	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 October 2001	Examiner Wentzel, J
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.92 (P04-001)



European Patent
Office

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 01 10 3738

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-5

Mounting of image pickup, imaging lens into casing

2. Claims: 6-10

Sealing of image pickup, imaging lens and connecting wires

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 10 3738

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

23-10-2001

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 5783815	A	21-07-1998	JP	9181287 A	11-07-1997
EP 0773673	A	14-05-1997	EP	0773673 A1	14-05-1997
			US	6122009 A	19-09-2000
			CN	1159271 A	10-09-1997
			WO	9638980 A1	05-12-1996
			JP	9284617 A	31-10-1997
FR 2690533	A	29-10-1993	FR	2690533 A1	29-10-1993
WO 9215036	A	03-09-1992	WO	9215036 A1	03-09-1992
			GB	2267580 A ,B	08-12-1993
JP 07226524	A	22-08-1995	NONE		
JP 56103481	A	18-08-1981	NONE		
JP 04023469	A	27-01-1992	NONE		
WO 9913515	A	18-03-1999	US	5962810 A	05-10-1999
			EP	1018165 A1	12-07-2000
			WO	9913515 A1	18-03-1999
			US	6143588 A	07-11-2000
US 4843036	A	27-06-1989	EP	0356465 A1	07-03-1990
			JP	2501692 T	07-06-1990
			WO	8900337 A1	12-01-1989